PARTNERING FOR SUCCESS
Land, Sea, and Air Instrumentation

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Trends in T&E

- **Earlier involvement by operational testers - much earlier.**
  - **Early operational assessments.**
    - » **Sometimes from drawings and when no hardware exists.**
  - **Consultations with programs regarding developmental testing before and after it starts.**
    - » **To save time and money.**
    - » **To improve operational realism.**
- **Contractor DT increasing vis-à-vis government DT.**
  - **Some programs have no classical DT.**
  - **Directly transition to government OT&E.**
  - **Inherent in new acquisition methods.**
- **Acquisition programs emphasizing performance over specifications and standards.**

Trends in T&E
(Continued)

- Test Ranges becoming more operational in their focus with combined test teams.
- Integrated Process Teams, including working IPTs.
- Operational insights provided much earlier.
  - Effectiveness.
  - Suitability.
  - Survivability.
  - Lethality.
- Realism in tests - all tests - not just operational tests.
- Earlier “early involvement” to affect design.

Early Involvement by Operational Testers Supports

- New investment at Service Test Ranges.
- Successful DT.
- Performance-based contracting vs MILSPEC.
- Spiral Development and software testing.
- Interoperability and system-of-systems testing.

Secretary of Defense Themes

- Early involvement by Operational Testers.
- Use models and simulations effectively.
- Combine tests where possible.
- Combine tests and training.
- Do for all programs including ACTDs.

SecDef Themes move toward learning and understanding, especially early understanding.

OT&E Workload Growing

- Modernization.
- Secretary of Defense Themes.
  - Early involvement.
  - Use models and simulations effectively.
  - Combine test when possible (DT+OT) (OT+OT).
  - Combine tests and training when possible.
  - Do above for all programs, including ACTDs.
- Testing for understanding and learning.
- Interfaces from increasing contractor DT.
- Joint Vision 2010 as a context for evaluation.
- Experimentation, notably AWEs and Battle Labs.
- CINC partnerships and joint experimentation in support of the CINCs.

Workload Demand

- **Testers and trainers are busier than ever.**
- **<u>For Example</u>:**
  - **OPTEVFOR.**
    - » **More operational T&E programs than in its 53 year history.**
  - **QDR Modernization.**
  - **T&E workload is driven by the number and variety of different systems being tested not by production quantities.**

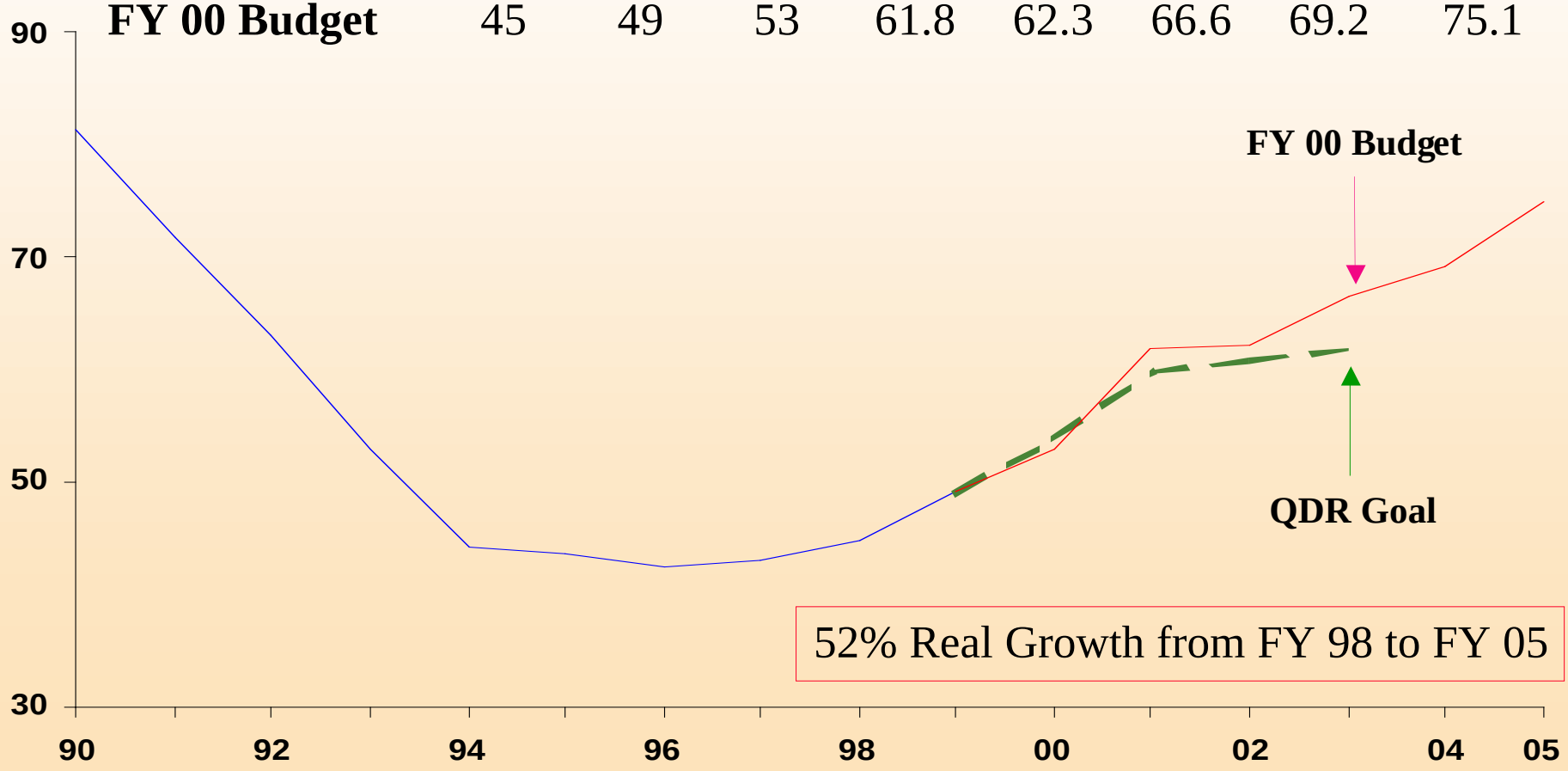
Some Major Weapon System Acquisition Programs

ABL	ESSM	NTW
AIM-9X UPGRADES	F/A-18 E/F	PATRIOT PAC-3
ALR-67/ASR	F-15 TEWS F-22	PREDATOR
AN/SQQ-89	FSV	QRCC/SSDS
ATACMS	ITAS	RAM SADARM
B-1	JDAM	SBIRS
B-2	JPATS	Seawolf/NSSN
Battlefield Digitization	JSF	SFW P31
C-17	JSOW	SH-60R
C2 VEHICLE	JSTARS	SIDPERS
CCTT	LPD-17	SIIRCM/ATIRCM/CMWS
Comanche	M1A2	SLAM
Crusader	MCS	SM-2
CVX	MHC	SPS
DD-21	Navy Area TBMD	SSN-21
DDG-51	NBC RECON Vehicle	THAAD
EA-6B	NMD	V-22

Modernization on Target

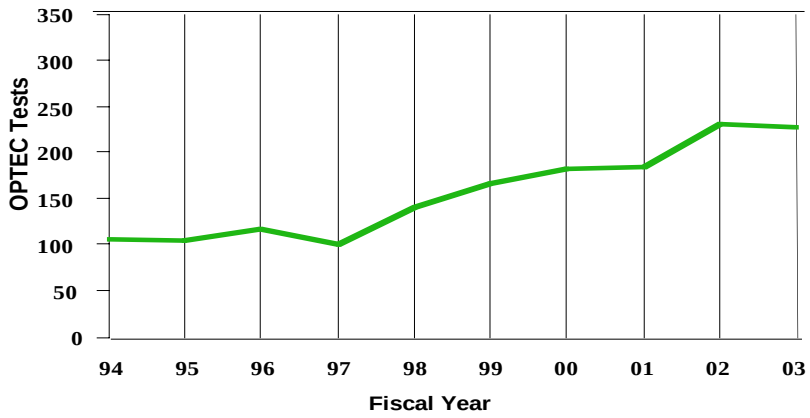
($ Billions)

	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05
QDR Goal	-	49	54	60	61	62	-	-
FY 00 Budget	45	49	53	61.8	62.3	66.6	69.2	75.1

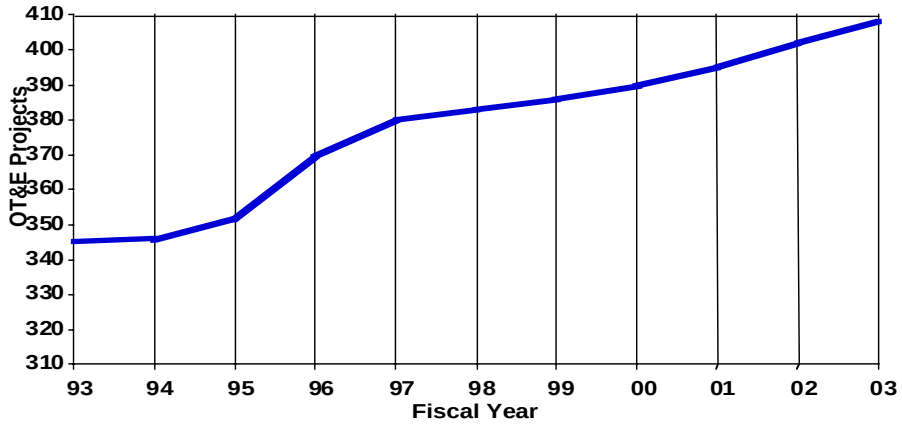


OT&E Workload

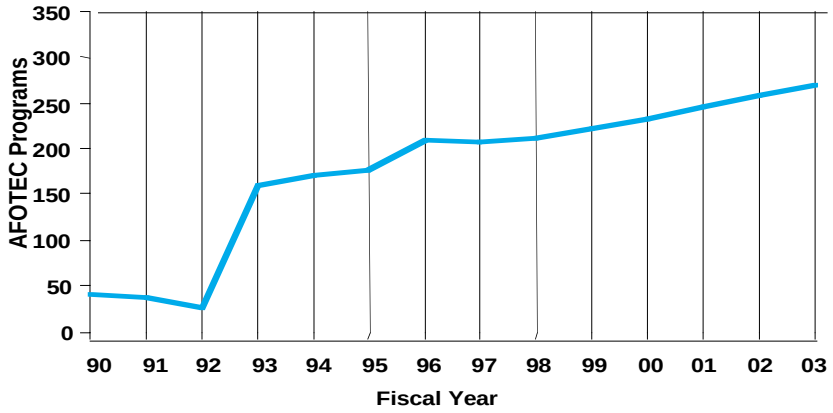
Army Operational Test and Evaluation Command (OPTEC) Workload



Navy Operational Test and Evaluation Force (OPTEVFOR) Workload



Air Force Operational Test and Evaluation (AFOTEC) Workload



T&E Capacity is Misunderstood

- **Misuse and misunderstanding of "excess capacity" is contributing to reductions in funding for T&E infrastructure.**
  - **Seen as "bad" or undesirable.**
  - **Definitions used are not useful in T&E context.**
  - **Sub-optimizing capacity of T&E infrastructure adversely impacts the acquisition process: cost and schedules.**
- **Misunderstanding "excess capacity" also targets the T&E infrastructure for "streamlining" and "reduction" studies.**
  - **At least 15 major studies and 4 BRAC reviews since 1988.**
  - **For 1.6% of DoD infrastructure cost -- a lot of attention.**

"Excess Capacity"

- **Misunderstanding regarding "excess capacity."**
  - **In Congress.**
  - **In OSD.**
  - **In the military Services.**
- **Too little recognition of the impacts and benefits of past and planned cuts.**
- **Driving toward "zero" excess capacity rather than optimizing acquisition.**

The Impact on Acquisition Programs from Declining T&E Capacity

- **Increased cost to customers from higher rates.**
  - **Reduced scope, increased risk.**
- **Cycle time delays, e.g.**
  - **RAM Block I.**
    - » **Self Defense Test Ship.**
  - **PAC-3 and Navy TBMD.**
    - » **Holloman Sled Track.**
  - **F-22 and F-15 Engines.**
    - » **AEDC Exhauster Electric Motor Parts.**
  - **F/A-18 E/F, SLAM-ER, and ALR-67(V3).**
    - » **VX-9 Part and Maintenance Personnel.**

Inadequate Investment Impacts Acquisition Programs

- Cost to customer increases and limits scope of testing.
- Time to test results in longer cycle times.
- Lack of cost-effective T&E methodologies and facility productivity improvements increase total T&E cost.
- Risk increases because test and measurement capabilities lag technologies being tested.

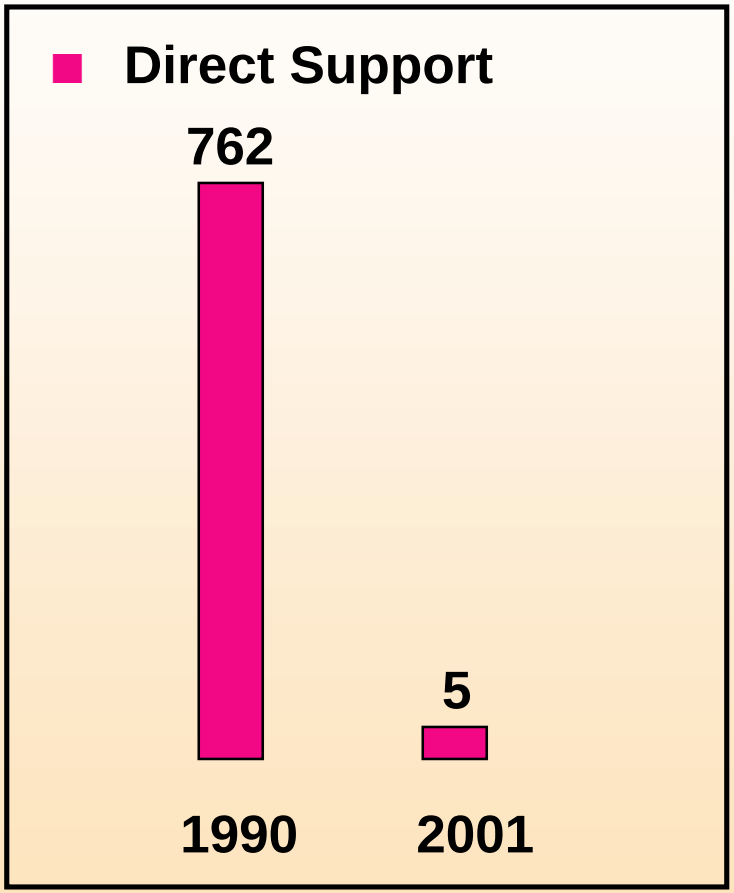
Need to Modernize T&E Infrastructure

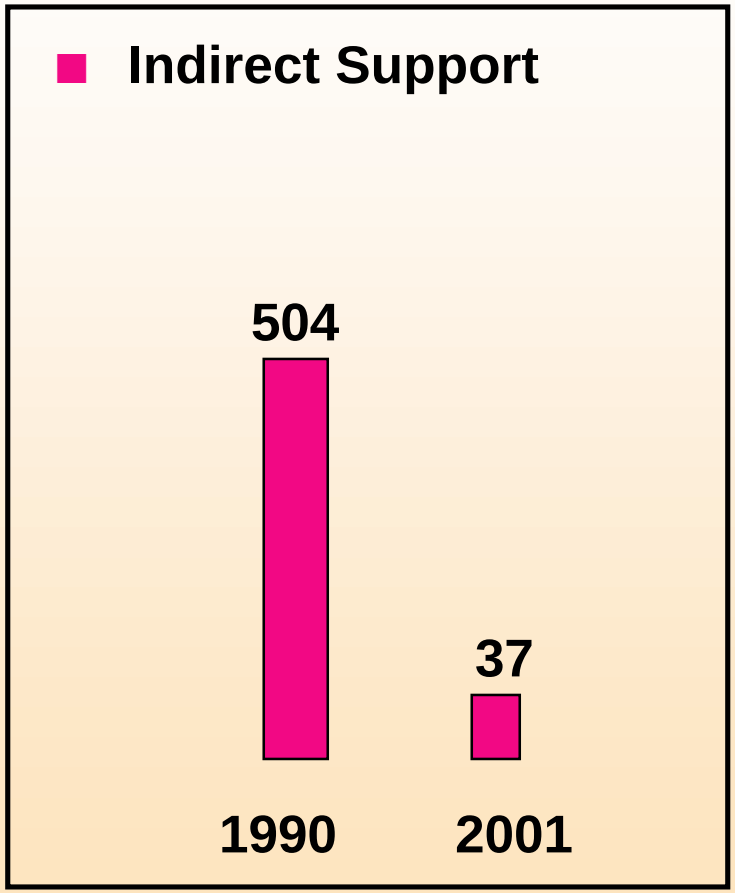
- Concerned about ability to support future acquisition programs.
  - Advanced sensors.
  - Real-time data processing.
  - Unmanned operations.
  - Urban and terrorist warfighting.
  - Detection and destruction of weapons of mass destruction in hardened targets with minimum collateral effects.
  - Massive communications and data handling.
  - Advanced aircraft and munitions.
- Must modernize to operate with less funding and manpower.

Military Service Role

- **The importance of a strong and continuing <u>military Service role</u> in the conduct and management of T&E.**
  - **Loss of military presence in T&E.**
    - » **Especially in the Army.**
  - **Consolidation options.**
  - **Military leadership.**

Military Personnel in Army Developmental T&E





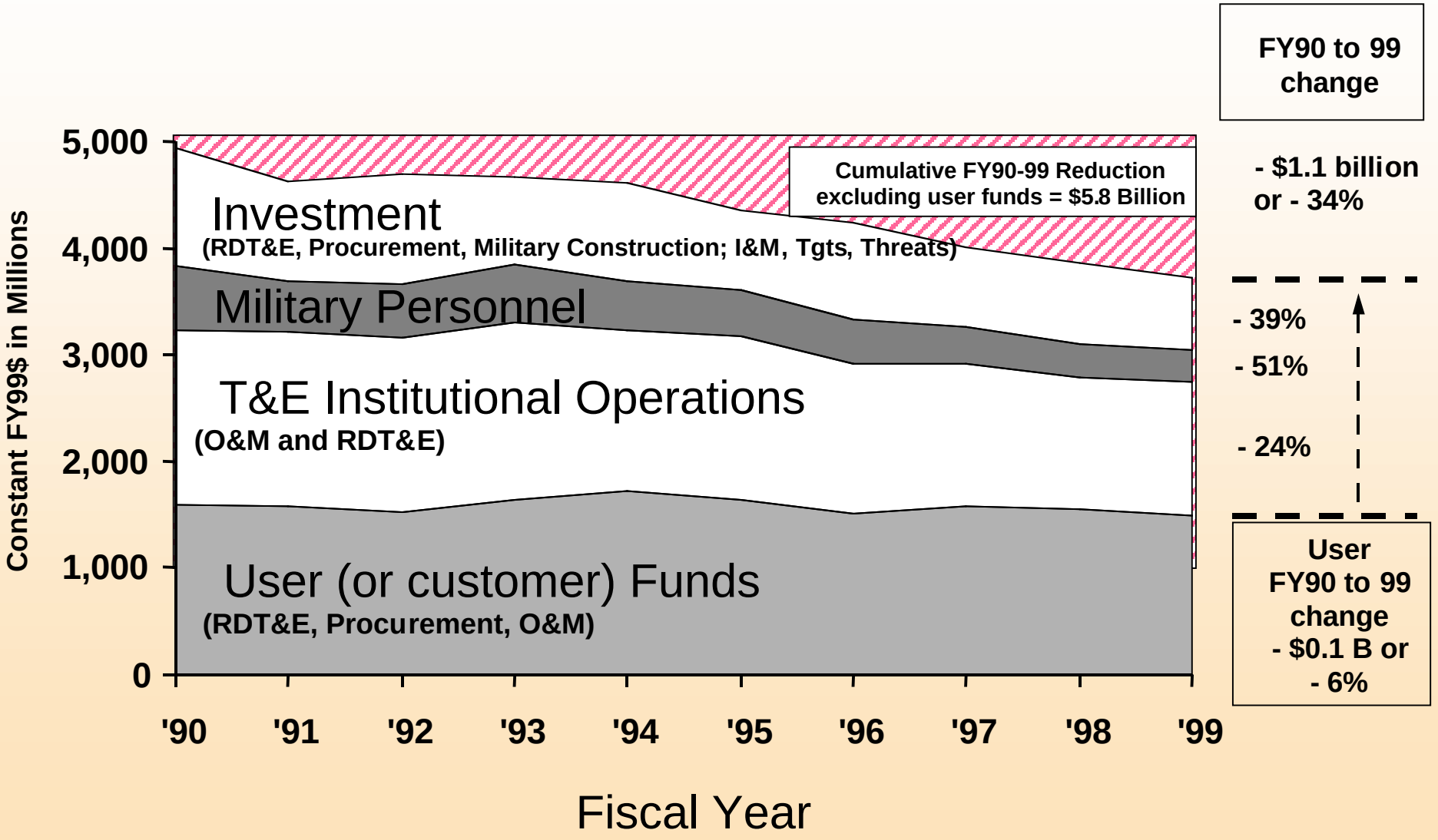
Military Service Role in T&E

- Cuts have drastically reduced the participation of military personnel in T&E.
- Active military participation in testing is key to understanding how a system will actually be used in combat.
- Early involvement by military personnel is especially important.
- Loss of military personnel from T&E will have grave effects on both developmental and operational T&E.
- Realistic operational testing depends on a strong military role.

BRAC Actions and Downsizing Have Reduced the Number of T&E Facilities

- Army restructured from 9 to 6 Major Test Centers
- Army Operational T&E Command formed by consolidating Operational Test and Evaluation Agency (OTEA), Test and Experimentation Command (TEXCOM) and Operational Threat Support Activity (OTSA)
- Navy consolidated technical activities into combined RDT&E infrastructure
- Navy closed RDT&E Center at White Oak, MD and consolidated management of assets under Arnold Engineering Development Center
- Air Force reduced test aircraft inventory by 50%
- Air Force consolidated 4950th Test Wing, REDCAP, and Electromagnetic Test Environment test assets at Edwards AFB

MRTFB Funding



Facilities

- **T&E Infrastructure**
  - **Most DoD T&E facilities and ranges are within the MRTFB**
  - **Other DoD T&E facilities and ranges**
- **Training ranges and operational bases that can be used for T&E**
- **BRAC Rounds**
  - **Reductions in MRTFB 1990-1999**
    - » **Funding $5.8B (=16 base closures)**
    - » **Workforce (=8 base closures)**
- **Funding Reductions**
  - **Remaining facilities difficult to keep viable**
    - » **Maintenance and repair**
    - » **Aging**
  - **Unique facilities threatened**

Threatened T&E Centers with Multiservice Users

- Tunnel 9, White Oak, MD
- Aberdeen Pulsed Radiation Facility
- Cold Regions Test Center, Alaska
- Tropic Regions Test Center, Panama
- Big Crow
- Defense System Evaluation Support-NMANG 150th FW

Major Concerns

- Exaggerated perceptions of “excess capacity.”
- Lack of new investment.
- Reductions in T&E budgets and personnel that are not based on workloads.
- Lack of understanding of test costs.
- Pricing policies that prevent operating T&E as a business.
- Disincentives for early involvement and testing for learning.
- Disincentives for streamlining and integrating T&E.
- Declining role of the military in T&E.

The Southwest U.S. Range Complex

- Camp Pendleton
- China Lake
- Edwards
- El Centro
- Fallon
- Ft. Bliss
- Ft. Huachuca
- Holloman
- Nellis
- Pt. Mugu
- Southern California Fleet Training Range
- Twenty Nine Palms
- UTTR/Dugway Proving Ground
- Vandenburg
- White Sands
- Yuma/MCAS YUMA

The Western Test Range Complex Strengths

- **Wide Political Support.**
- **Job Stability.**
- **“BRAC Proof”.**
- **Potential Economies in management and range support.**
- **Rotating command structure demonstrates “Jointness”.**
- **Rotating command structure deals with “Excess Capacity” issues and the perception that we have too many test ranges.**
- **Full use of combined land and air space for testing and training.**
- **Full use of shrinking frequency spectrum.**
- **Interoperable Instrumentation for Testing and Training.**

In short, the Western Test Ranges are run together as a real business.

The Western Test Range Complex Weaknesses

- Threatening to Eastern Ranges.
- Who POMs for funding under rotating or single command structure?
- Loss of Military Service Sense-of-Ownership
- Loss of Distinctions between individual Western Ranges.
    - Personality
    - Culture
    - Unique or Special capability
- Homogenization.
- Pressures to further reduce land or air space.
- A Bigger Target.

The Future Is In Diversity

- **Test Ranges - Especially the Test Ranges in the West - need to distinguish themselves for their unique and special capabilities.**
- **We need a diversity of Test Ranges, not a uniformity of Test Ranges.**

Operational Realism will always be a Distinguishing Feature.

Partnering For Each Others Success

- **A true Partnership among the Western Test Ranges will produce a regional test capability with many varied and diverse features.**

- **We need to champion each others strengths while championing our differences.**

Partnering for Each Others Success

- At any given Test Range, new investment should be focused on enhancing existing unique or special capabilities or on building new capabilities that do not exist elsewhere.

- This means test ranges will need to work for each others' success, supporting new capability at other test ranges - not trying to fight it or match it - while investing in their own unique or special strengths.

This is True Partnership